CLAIMS

What is claimed is:

1. A method of inducing immune tolerance to an antigen in a mammal, comprising:

(a) administering an engineered population of white blood cells that express an antigen to a mammal one or more times thereby inducing at least partial immune tolerance of the antigen in the mammal.

2. The method of claim 1 further comprising:

(b) engineering a population of white blood cells to express the antigen.

3. The method of claim 2 further comprising:

(c) obtaining the population of white blood cells from the individual prior to (b).

4. The method of claim 2 wherein (b) comprises inserting a nucleic acid encoding the portion of the antigen or a nucleic acid that encodes an enzyme capable of producing part of the antigen into the white blood cells.

5. The method of claim 4 wherein the nucleic acid encoding the portion of the antigen or a nucleic acid that encodes an enzyme capable of producing part of the antigen is inserted into the white blood cells by a replication defective adenovirus.

6. The method of claim 1 wherein the antigen is a carbohydrate.

7. The method of claim 6 wherein the antigen is a blood group antigen.

8. The method of claim 7 wherein the blood group antigen is blood group A antigen, blood group B antigen or both.

9. The method of claim 2 wherein (b) occurs *in vitro*.

10. A white blood cell produced by engineering the white blood cell to express an antigen.

11. A pharmaceutical composition comprising the cell of claim 10.

12. The method of claim 1 further comprising:

(d) exposing the mammal to the antigen.

13. The method of claim 11 wherein (d) comprises transplanting a tissue comprising the antigen into the mammal.

14. The method of claim 1 wherein the mammal is a human.

15. The method of claim 12 further comprising:

(e) measuring the immune reaction of the mammal to the antigen.

16. The method of claim 15 further comprising:

(f) comparing the immune reaction of the mammal to the antigen with the immune reaction of a control mammal that had not been administered an engineered population of white blood cells that express the antigen.

17. The method of claim 6 wherein the antigen comprises the α-gal epitope [Galα1-3Galβ1-(3)4GlcNAc-R].

18. The method of claim 1 wherein the mammal is essentially free of circulating antibodies that react specifically with the antigen.

19. The method of claim 1 wherein the engineered white blood cells comprise lymphocytes.